A new Full Detector Simulation Campaign to train and test Tracking & Reconstrution

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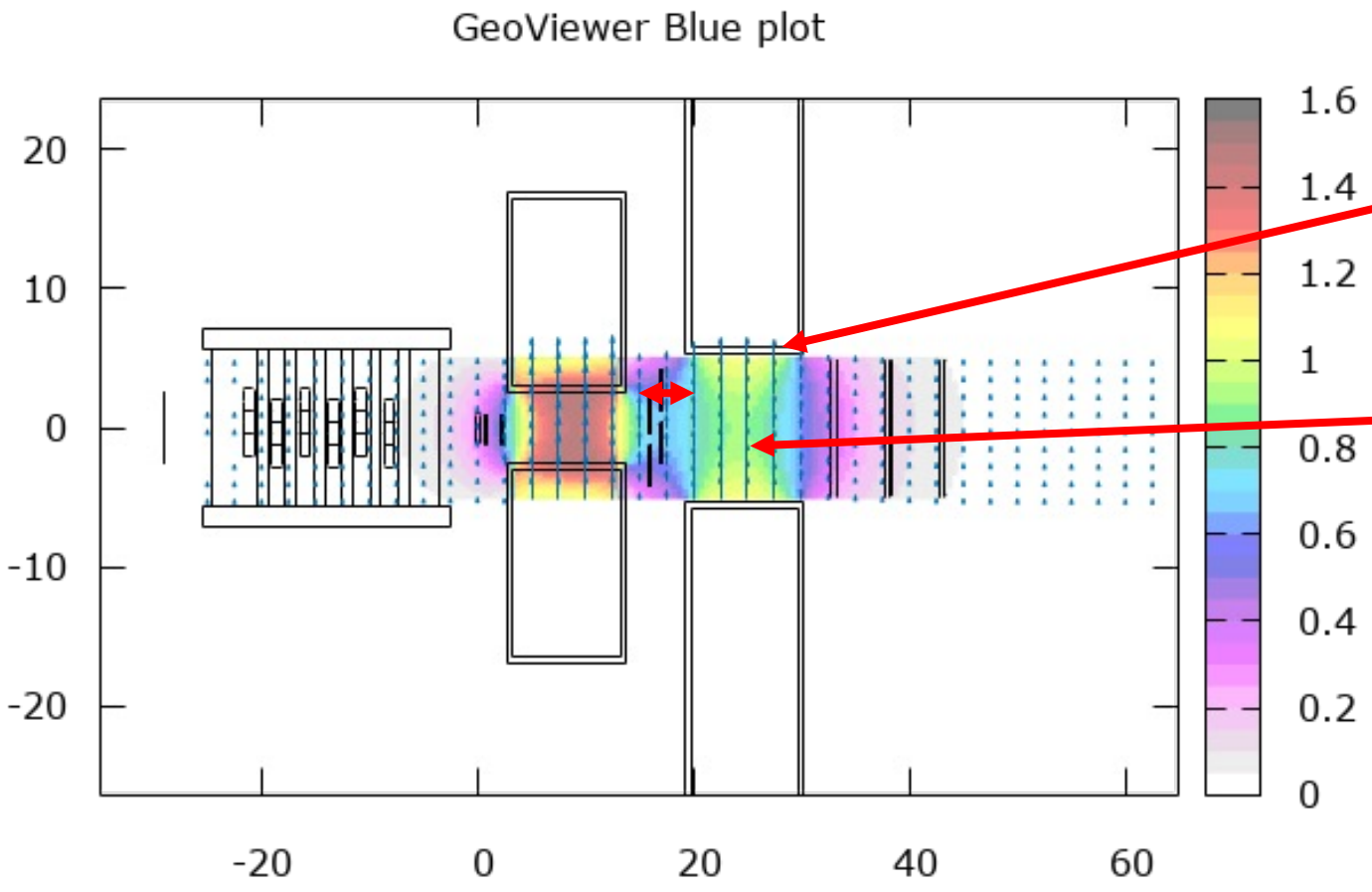
Introduction

- Following what was pointend out the last meeting (Feb. 1st) we have received the updated map of magnetic field by the Sigma-Phi firm: it is extended in the transverse directions by 1 cm, and considers the increased distance (0.5 cm) between the 2 magnets.
- We have prepared a new MC campaign called **12C_200_2023** cloning the **12C_200new** one. It includes all the magnet developments and the new geometry of the full calorimeter setup.
- The new map to be placed in Reconstruction/data is named SigmaPhi_FOOT2023.table. B field integrals remain practically the same

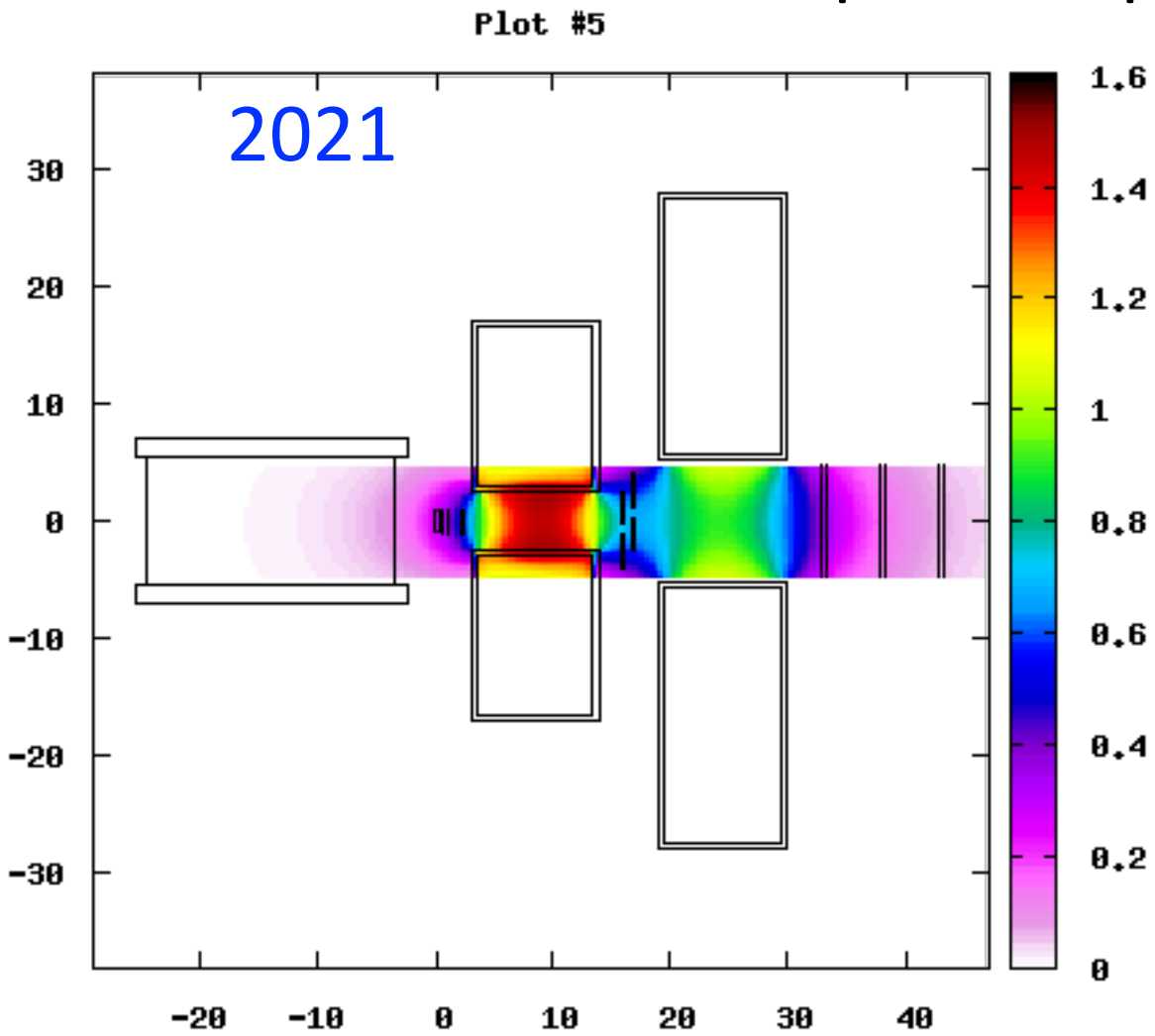
B-intensity and vector map superimposed to the FOOT geometry (y vs z view)

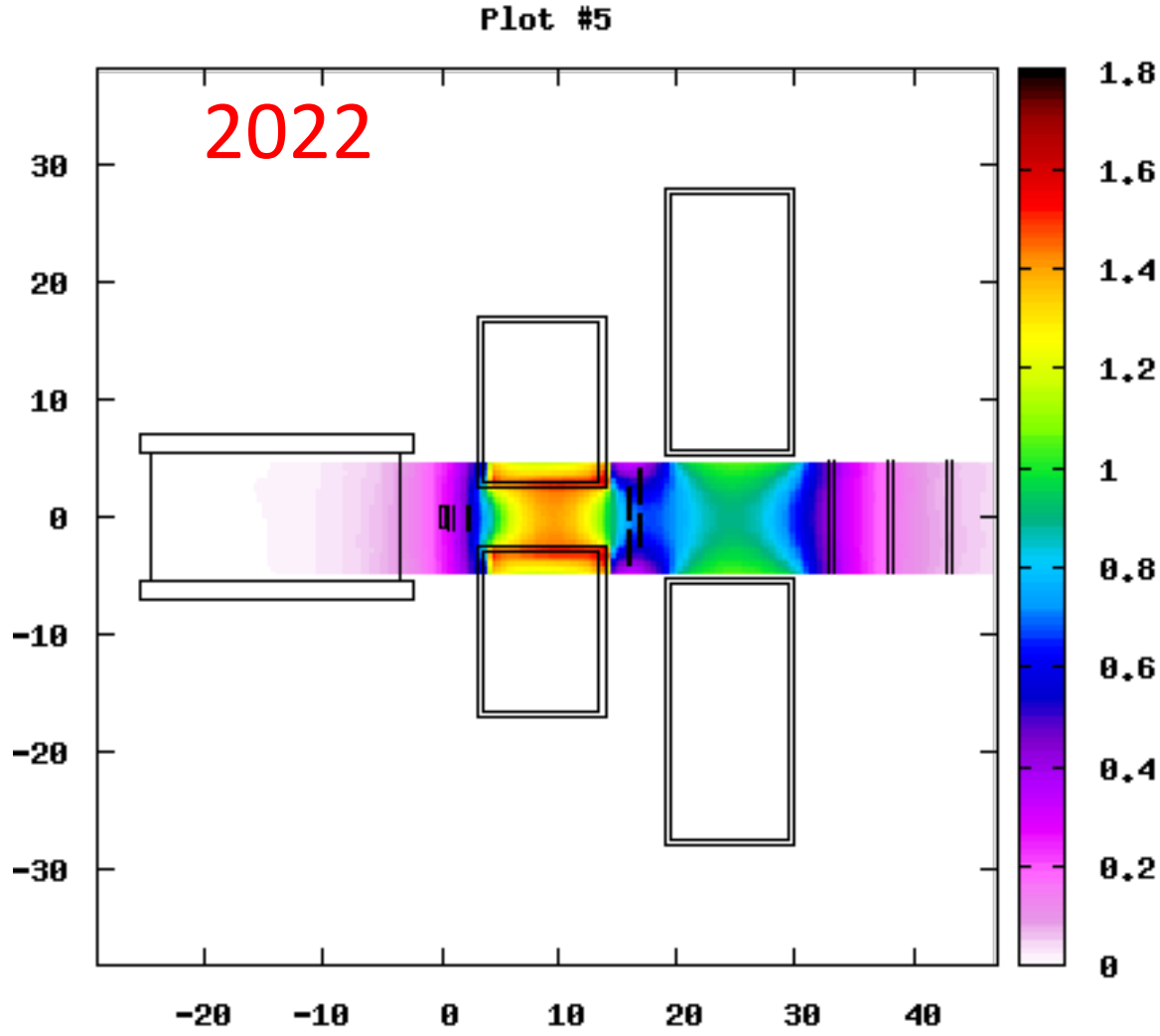


➔ It can be seen that:

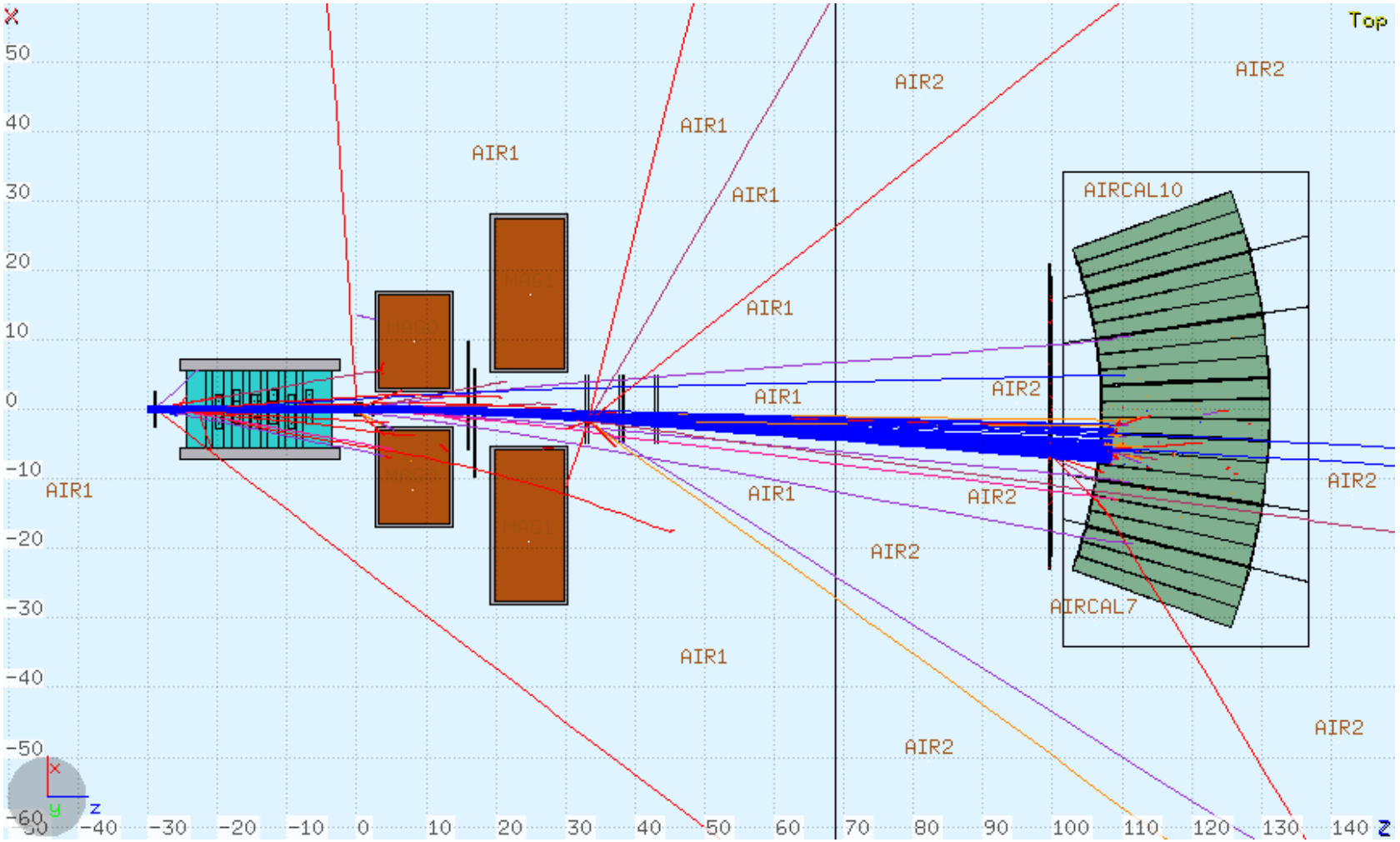
1) Now the map covers the whole bore size of the largest magnet
2) Now the field is well centered in both magnets (gap between magnets changed from 5.0 cm to 5.5 cm)

Previous 2D-map comparison





Preliminary test



For the moment all features appear as expected

All detector distances remain equal to those of 12C_200new campaign
In particular, the distance from target to TW

Conclusions

As soon as all the tests will be completed, the **12C_200_2023** campaign will be committed and a first production will be produced according to the requests of the Analysys and Tracking working group:

- 10^7 events “untriggered” (all events)
- Additional 10^5 events triggered mode (only fragmentation in target events)